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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/209,982	12/09/1998	MICHAEL KAPLINSKY	08305/050001	6236

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EXAMINER	
VILLECCO, JOHN M	
ART UNIT	**PAPER NUMBER**
2622	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/209,982	KAPLINSKY, MICHAEL	
	Examiner	Art Unit	
	John M. Villecco	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,11-13,16,17 and 21-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11-13,16,17 and 21-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed April 13, 2006 have been fully considered but they are not persuasive.

2. Applicant has amended claims 1 and 6 to include various manifestations of the limitation of applying weighting factors to the error measures. Previously, the examiner used Yamaguchi in making rejections of the application of a weighting factor to the error measures. However, the applicant is arguing that Yamaguchi fails to disclose the minimization of weighted least squares of differences between expected signal values and detected signals in order to determine the value of the color correction matrix. See page 10, lines 4-6 of the applicant's response filed on April 13, 2006. The examiner agrees that Yamaguchi, alone, does not disclose the minimization of weighted least squares of differences between expected signal values and detected signals in order to determine the value of the color correction matrix. However, when used in combination with Kim, one of ordinary skill in the art would have been motivated to weight the error measures of Kim so that certain color may be weighted more than others. Yamaguchi certainly teaches comparing input color with output colors (pgs. 9-11 of the translation accompanying the office action mailed on August 14, 2003) and weighting certain colors more than others by developing a color correction matrix (A). Therefore, one of ordinary skill in the art would have found it obvious to weigh the error measures of Kim so that certain colors are weighted more than others.

3. For the above reasons the rejections from the previous office action will be repeated.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1, 4-9, 11-13, 16, 17, and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 6,320,668) in view of Yamaguchi (Japanese Publ. No. 02-074367 A).**

6. Regarding ***claim 1***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last

line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction. As shown in column 13, lines 40-62, Kim discloses calculating a minimum value for each of the error values of the red green and blue components of the input colors. In this case the reference is denoted as P_{Ri}, P_{Gi}, and P_{Bi}. The input colorimetric data is denoted as $\underline{P}_{Ri}$, $\underline{P}_{Gi}$, and $\underline{P}_{Bi}$. The process for calculating a minimum value for each of the error values of the red, green, and blue components would inherently be the same as the process for computing the error between the grey level corrected signals and the colorimetric scanning data as described on column 21, lines 1-65. Kim teaches that his color correction apparatus is used in more closely approximating actual colors according to the CIE-XYZ color coordinate system. See column 12, lines 35-68. Furthermore, Kim teaches that his color correction is performed in order to have a more accurate reproduction of the colors of an image, such as in a printer. See column 7, lines 35-62. Additionally, Kim teaches that a colorimeter is used to determine the exact color of each color in the chromatic test chart (col. 13, lines 6-8). Thus, in order to have a more faithful reproduction of color in the printer (9) disclosed in Kim, the colorimeter measures the actual colors of the test chart and uses them to generate the color correction matrix. Therefore, the colors determined using the colorimeter are interpreted by the examiner to be the expected signals of an image-rendering device (printer).

Kim, however, fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more

emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

7. As for ***claim 4***, Kim discloses using 24 colors in the color chart (12). Thus, the system uses at least 7 colors. See column 12, lines 15-30.

8. As for ***claim 5***, Kim discloses using 24 colors in the color chart. See column 12, lines 15-30.

9. Regarding ***claim 16***, Yamaguchi discloses weighing flesh tones more than others. See the abstract.

10. With regard to ***claim 21***, Yamaguchi discloses weighing certain colors more than others (i.e. flesh tones). Additionally, Yamaguchi teaches that a weighing factor is applied to specific colors within the color correction matrix in order to weigh flesh tones more heavily. See the abstract. The fact that flesh tones are weighed more than other less important colors, shows that Kim is concerned with the impact of the flesh tones on the image quality.

11. As for ***claim 23***, Kim discloses that the detected signals are obtained for each of R, G, and B components. See column 14, lines 1-45.

12. Regarding ***claim 25***, Kim teaches that the object of the invention is to image an object and provide a high quality, color image. This is done by scanning test patterns and setting up a color correction matrix for high fidelity imaging. After establishing an

accurate color correction matrix this device is inherently used to capture images of objects, which are to be reproduced using the color correction matrix. See column 1, lines 17-26.

13. With regard to ***claim 6***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). A spectral optical system is used which includes a color resolution filter (col. 7, lines 45). The system outputs spectral information regarding the RGB colors (col. 13, lines 46 and 47). This amounts to an interpolation to determine all color components that impinge on the pixel. The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. The color correction-processing unit acts as the image interpolator since it performs the color correction. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction.

However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

14. Regarding ***claim 7***, Kim discloses that the color chart (12) includes red, green, blue, white, and 20 additional colors. See column 12, lines 15-30.

15. As for ***claim 8***, Kim discloses using 24 colors in the color chart. See column 12, lines 15-30.

16. With regard to ***claim 9***, the system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. As mentioned above, Yamaguchi discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to

which the eyes are more sensitive will be emphasized, thus producing a higher quality image.

17. With regard to ***claim 11***, as mentioned above in the rejection of claim 6, it is obvious to weight colors which are important (and to which the eye is more sensitive to), higher than other colors, so that a higher quality image is formed. It is well known in the art that red, green, and blue are very important colors, and thus it would have been obvious to one of ordinary skill in the art to weigh these colors more than the dull colors.

18. Regarding ***claim 12***, Kim discloses using each color of the color chart (12) to produce a color correction matrix. See column 11, line 65 to column 12, line 41.

19. As for ***claim 17***, the equations represented by the color correction processing unit would inherently be solved simultaneously in Kim.

20. Regarding ***claim 22***, Yamaguchi discloses weighing certain colors more than others (i.e. flesh tones). Additionally, Yamaguchi teaches that a weighing factor is applied to specific colors within the color correction matrix in order to weigh flesh tones more heavily. See the abstract. The fact that flesh tones are weighed more than other less important colors, shows that Kim is concerned with the impact of the flesh tones on the image quality.

21. With regard to ***claim 13***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). A spectral optical system is used which includes a color resolution filter (col. 7, lines 45). Inherently a color filter operates to supply only light of a certain wavelength to the pixel which it covers. The system outputs spectral information regarding the RGB colors (col. 13, lines 46 and 47). The reference outputs

are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction. Furthermore, as mentioned previously, the colorimeter is used to determine signals expected to be seen for each of the plurality of known reference colors.

However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

22. With regard to ***claim 24,*** Kim discloses that the detected signals are obtained for each of R, G, and B components. See column 14, lines 1-45.

23. As for ***claim 26***, Kim teaches that the object of the invention is to image an object and provide a high quality, color image. This is done by scanning test patterns and setting up a color correction matrix for high fidelity imaging. After establishing an accurate color correction matrix this device is inherently used to capture images of objects, which are to be reproduced using the color correction matrix. See column 1, lines 17-26.

24. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 6,320,668) in view of Yamaguchi (Japanese Publ. No. 02-074367 A) and further in view of Endo (U.S. Patent No. 6,256,062).**

25. Regarding ***claim 3***, as mentioned above in the discussion of claim 1, the combination of Kim and Yamaguchi discloses all of the limitations of the parent claim. However, neither of the aforementioned references specifically discloses that the weight factor may have a different value for each of the reference colors. Endo, on the other hand, discloses that it is well known in the art to select a plurality of different colors and weight them differently according to a user input. More specifically, Endo teaches the ability to select a color from a test color chart and to enter a weighting factor. See column 8, lines 18-36. This feature allows for a plurality of colors to be corrected such that color differences among cameras are corrected. See column 10, lines 35-50. Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to allow the device of Kim to adjust the weighting factors for each of the colors differently so that color difference may be minimized.

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (571) 272-7319. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John M. Villecco
June 13, 2006

DAVID OMETZ
SUPERVISORY PATENT EXAMINER